ROLE OF ARTIFICIAL INTELLIGENCE IN ENHANCING PERSONALIZED BANKING SERVICES IN KHED TALUKA OF PUNE DISTRICT

Afroz Firoz Inamdar* and **Dr. Pramila Patil****

*Assistant Professor, Department of Commerce, CSM's Arts and Commerce College Chakan, Research Scholar, SNDT Women's University of Mumbai

**Head of the Commerce Department, SNDT Women's University Pune

ABSTRACT

Personalized banking plays a very essential role in the modern banking field by shifting banks from a product-centric approach to a customer-centric approach. It helps banks understand customers better and offer services according to their individual needs. Personalized banking means "banking services designed especially for each customer instead of the same service for everyone." Artificial intelligence is a branch of computer science that enables machines to emulate human intelligence in order to learn, reason, and solve complex problems. AI plays a crucial role in delivering personalized banking services by analyzing customer data and predicting individual needs. It includes chatbots, customized products, individual financial advice, personalized offers and alerts, digital personalization, relationship management, etc. It is a sign of the use of modern technology in the banking field. The present study aims to examine the role of artificial intelligence in enhancing personalized banking services in Khed Taluka of Pune District. The primary focus of the study is to analyse customer awareness, usage, perception, and satisfaction towards AI-enabled banking services. The study is empirical in nature and is based on primary data collected through a structured questionnaire administered to bank customers in Khed Taluka of Pune District. A sample of respondents using digital banking services was selected through convenient sampling. The collected data were analysed using simple statistical tools such as percentages, tables, and graphical representations to interpret customer responses.

The main results of the study reveal that a majority of respondents are aware of AI-based banking services and regularly use them for transactions, customer support, and personalized alerts. The findings indicate that AI has significantly improved the convenience, accuracy, and speed of banking services, leading to higher customer satisfaction. The study concludes that artificial intelligence plays a crucial role in enhancing personalized banking services in Khed Taluka.

Keywords: *Artificial Intelligence, Personalized Banking, Customer Satisfaction, Digital Banking,*

INTRODUCTION:

The bank is giving lots of service in the financial system of our country. Now in digital India and with updated computer technology, AI becomes an essential part of personalized banking services. Customers in banks are availing AI-based personalized bank services. Artificial intelligence is computer-based technology that has become part of most fields in today's economy. It is also playing a fundamental role in the banking field by providing personalized banking services. Artificial Intelligence (AI) is transforming the way banking services are delivered across the world, and its impact is increasingly visible even in semi-urban and rural regions such as Khed

Taluka in Pune District. Account holders in rural areas depended on basic in-branch services for their banking needs. In Khed Taluka, where people may face challenges such as limited access to banking infrastructure, language barriers, and diverse financial literacy levels, AI-powered tools help bridge the gap. With AI, banks can now offer personalized, efficient, and customer-centric financial services by learning from customer behavior, preferences, and transaction history, even in rural areas. The bank provides personalized loan offers, savings plans, fraud detection alerts, and round-the-clock virtual assistance, which makes banking more accessible, convenient, and relevant to each customer. In Khed of the Pune district, the banking sector expanded with public, private, and cooperative banks. So this study is conducted to study awareness of bank customers towards AI and customer satisfaction with AI services regarding personalized banking services.

REVIEWS OF LITERATURE

Teja Reddy Gatla (2022) The role of AI in personalized banking services: This paper explains artificial intelligence, personalized banking services, and AI's role in personalized banking services. It also gives knowledge about AI techniques for tailoring financial decisions and AI applications in customizing financial services**.** The paper concludes that artificial intelligence has been applied to improve banking systems, especially for personalized customer experience.

Rita Jain (2023) Role of artificial intelligence in banking and finance: This research paper provides an in-depth analysis of the use of AI in banking and finance, examining its various applications such as fraud detection, credit scoring, customer service, and investment management. The objective of the study is to explore the benefits and challenges associated with AI implementation in the financial sector. The paper concludes AI technologies have significantly improved decision-making processes, reduced operational costs, and increased overall profitability

A. Gheeta (2021) A Study on Artificial Intelligence in Banking and Financial Services: This paper focuses on the artificial intelligence (AI) in the banking and financial services in Chennai. The objective of the study is to oversee the application of artificial intelligence methodology in the banks. The paper concludes that the customers want more commitment from representatives to the banking and financial services by giving innovative development to prepare to improve the AI procedures in the workplace.

RATIONALE OF STUDY
These reviews explain how AI has become part of banking services. This paper also explains the role of artificial intelligence in personalized banking services and AI applications in personalized banking services with reference to Khed Taluka of Pune District.

OBJECTIVES
1. To examine the concept and applications of Artificial Intelligence in personalized banking services,

2. To study customers' awareness of AI-based personalized banking services offered by banks.

3. To analyze the impact of AI-driven personalized banking services on customer satisfaction and service experience

AI Based Personalized Banking Services
1. Chatbots & Virtual Assistants: Chatbots driven by artificial intelligence assist customers at all times by resolving queries, sharing balance details, and providing tailored guidance based on previous customer behavior

2, Personalized Product Recommendations: AI analyzes customer data (spending habits, income, preferences) to suggest suitable loans, credit cards, or investment products.

3. Customized Offers & Discounts: Banks use AI to send personalized offers, cashback deals, and discounts based on individual customer behavior and transaction history.

4. Fraud Detection & Security Alerts: Intelligent systems powered by AI oversee transactions continuously and issue immediate warnings when unusual patterns are detected

5. Credit Scoring & Loan Approval: AI evaluates customer creditworthiness quickly and accurately, enabling faster and personalized loan decisions.

6. Voice-Based Banking Services: AI-powered voice assistants allow customers to perform banking tasks using voice commands in a secure manner.

7. Robo-Advisory Services: AI-driven robo-advisors provide personalized investment advice based on a customer's risk profile and financial goals.

8. Predictive Banking Services: AI predicts future customer needs, such as upcoming bill payments or fund shortages, and provides timely suggestions or alerts.

9. Customer Experience Personalization: AI personalizes the banking app interface, notifications, and communication style according to individual customer preferences.

Hypothesis: Customer Awareness and AI in personalized Banking
Null Hypothesis (H_0): Customers are not aware of the use of Artificial Intelligence in personalized banking services.

Alternative Hypothesis (H_1): Customers are aware of the use of Artificial Intelligence in personalized banking services.

RESEARCH METHODOLOGY
The research design of the study is descriptive and analytical. The study was conducted in Khed Taluka of Pune District and focuses on bank customers using AI-based personalized banking services. Both primary and secondary data were used. The study collected primary data from 50 respondents with the help of a structured

questionnaire, adopting convenience sampling. Secondary data was collected from books, research journals, banking reports, and relevant websites. The collected data was analyzed using percentage analysis, graphs, and chi-square tests with the help of MS Excel. The study tests hypotheses related to customer awareness regarding AI-based personalized banking services. The study is limited to Khed Taluka with a small sample size. The findings are based on respondents' perceptions

Data Analysis and Interpretation
a) Descriptive Analysis
1) Gender

Chart No. 1

Gender	Frequency	Percentage
Male	27	54
Female	23	46
Total	50	100

Source: Primary Data

Interpretation: The Chart 1 indicates that 54% (27) respondents are male, while 46% (23) respondents are female reflecting higher representation of male in the Sample.

2. Age:

Chart No .2

Age	Frequency	Percentage
Below 25	6	12
25-35	5	10
36-45	24	48
46-55	12	24
Above 55	3	6

Source : Primary Data

Interpretation: Chart 2 indicates that 48 % (24) are respondents are from age group 36-45 , 24% (12) are respondents are from age group 46-55 ,12% (6) respondents are from below 25 , 10 % (5) are respondents are from age group 25-35 and 6%(3) are from above 55. It shows that majority of respondents from experienced group 36-45 and very less are from above 55. It also shows smaller representation of younger participants .

3. Type of Bank Account

Chart No.3

| Type of Bank	Frequency	Percentage
National	30	60
Private	16	32
Cooperative	4	8

Source : Primary Data

Interpretation: Chart 3 indicates that 60% (30) respondents have bank account in Nationalized Bank, 32% (16) respondents have bank account in Private Bank and 8% (4) have bank account in Cooperative Bank. It shows respondents having bank account in Nationalized bank are more than respondents having bank account in private bank and Cooperative Bank . Few respondents have account in Cooperative Bank .

4. Awareness about AI Based Personlized Banking Services

Chart No. 4

AI Based Personalized Bank Services	Frequency	Percentage
Chatbots / Virtual Assistants	27	54
Personalized offers/ Recommendations	28	56
Fraud detection alerts	32	64
Voice Based Banking	14	28
Automated Loan Approval	6	12
Not Aware of Any	4	8

Source : Primary Data
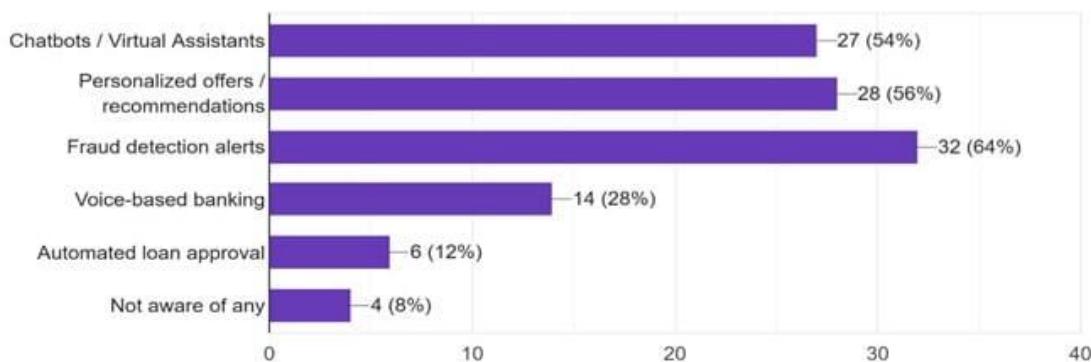

Source : Primary Data

Interpretation : Chart 4 indicates that respondents are aware of AI based personlized Banking Serviices . Fraud detection alerts and Personal offers are mostly used by respondents having percentage 64% (32) and 56% (28) respectively . Chatbots having percentage 54% (27) and Voice based banking having percentage 28% (14) are after these two one are used by respondents .Automation loan approval having less percentage of awareness i.e 12% (6) . There are also 8% respondents who are not aware of AI Based personlized Bank Services

5. Source of Information about AI Based Personlized Banking Services

Chart. No 5

Source of Information about AI Based Personalized Banking Services	Frequency	Percentage
Bank Staff	28	56
Mobile banking app	27	54
Social Media	21	42
Friends /relatives	10	20
Others	4	8
Don't have awareness of AI	1	2

Source: Primary Data
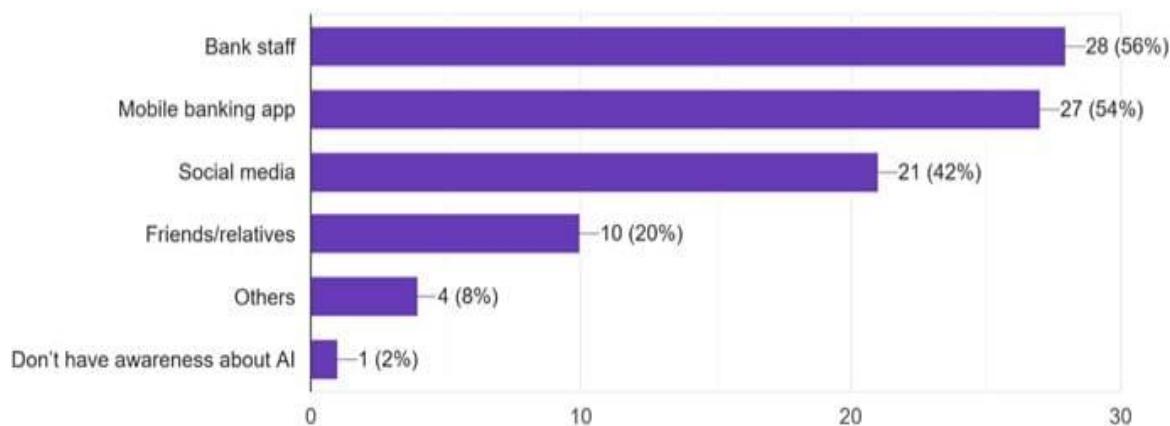
Source: Primary Data

Interpretation : Chart 5 indicates that respondents have various source of information about AI Based Personlized Banking Service ' Bank staff 56% (28) and Mobile Banking App 54% (27) are main source of Information of AI services . Social Media 42% (21) and Friends and relatives 205%(10) are also playing role in providing information about AI based services . There are other sources 8% (4) also for providing information about AI based services. 2%(1) are not aware about AI services.

6. Perception of Customer towards AI Based Personalized Banking Services

Chart No .6

AI Based Personalized Banking Services made banking transactions easier and faster	Frequency	Percentage
Strongly Agree	15	30
Agree	32	64
Disagree	2	4
Strongly Disagree	1	2

Source: Primary Data

Interpretation: Chart 6 indicates that 30% (15) respondents are strongly agree and 64% (32) respondents are agree that AI based services made banking transactions easier and faster where as only 4% (2) are disagree and 2% (1) are strongly disagree that AI based made services made banking transactions easier and faster. It shows that respondents are availing benefits faster due to AI based banking service

7. Customer Satisfaction and Experience

Chart No. 7.1

1) AI-based personalized services meet my banking needs effectively.	Frequency	Percentage
Strongly Agree	11	22
Agree	38	76
Disagree	1	2
Strongly Disagree	0	0

Chart 7.2

2) AI-powered services save my time compared to traditional banking methods.	Frequency	Percentage
Strongly Agree	13	26
Agree	28	56
Disagree	9	18
Strongly Disagree	0	0

Chart No. 7.3

3) I am satisfied with the accuracy of AI-based banking services.	Frequency	Percentage
Strongly Agree	11	22
Agree	37	76
Disagree	2	4
Strongly Disagree	0	0

Chart No.7.4

. 4)AI-based services have improved my overall banking experience.	Frequency	Percentage
Strongly Agree	9	18
Agree	25	50
Disagree	14	28
Strongly Disagree	2	4

Source: Primary Data
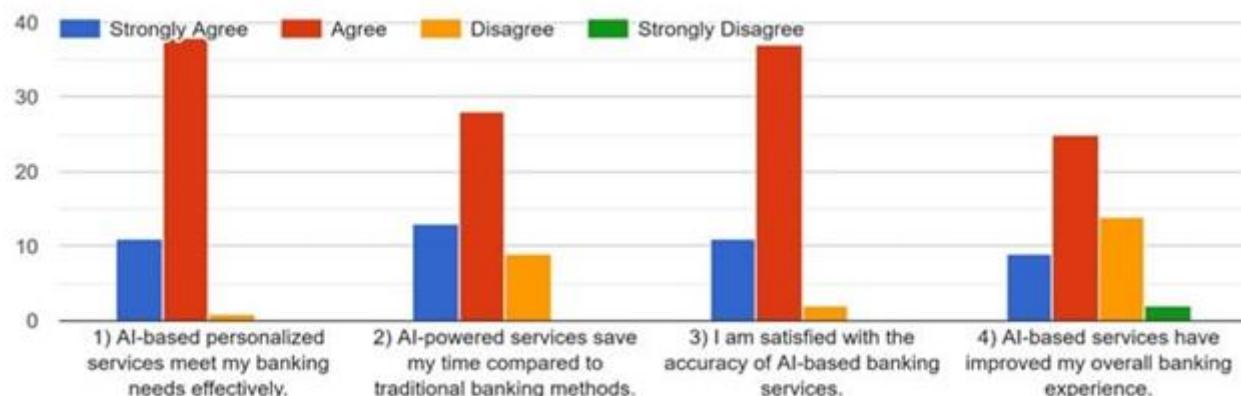
Source: Primary Data

Interpretation: Graph Indicates Customer Satisfaction and Experience. Most of respondents are strongly agree and agree that AI Based Personalized Services meet banking need effectively. They are also experienced that AI Based services save time compare to traditional banking methods. Respondent's majority is towards that they are satisfied with accuracy of AI Based Services. Most of respondents are strongly agree and agree with the statement that AI Based Banking Services improved their overall performance. There are very few respondents who are not satisfied with AI Based Banking Services.

b) Hypothesis Testing

Customer Awareness about Use of AI in Personalized Banking Services

Chart No.8

Customer Awareness about Use of AI in Personalized Banking Services	Expected Frequency	Observed Frequency	Testing Norms
Aware	25	46	If p value < 0.05 Reject Null Hypothesis
Not Aware	25	4	If p value > 0.05 Accept Null Hypothesis
Total	50	50	

Chart No. 9

Particulars	Value
Sample Size (N)	50
Degree of Freedom(df)	1
Level of Significance	0.05
Calculated χ^2 Value	35.28
Table χ^2 Value at df is 1 and level of significance is 0.05	3.84
p value for Calculated χ^2 Value	Less than 0.001

As Calculated χ^2 Value is 35.28 and Table χ^2 Value at df   is 1 and level of significance is 0.05 is 3.84. And p value for Calculated χ^2 Value is 35.28 is less than 0.05. So Null Hypothesis is rejected Indicating that customers are significantly aware of use of AI in personalized Banking services,

FINDINGS
Artificial intelligence is the updated computer technology that has become the major part of personalized banking services. Most of the respondents have accounts in nationalized banks rather than private and cooperative banks.

There are various AI-based personalized banking services like chatbots/virtual assistants, personalized offers/recommendations, fraud detection alerts, voice-based banking, automated loan approval, etc.

There are various sources of AI-based personalized banking services information providers, like bank staff, mobile apps, social media, friends, etc. The introduction part explains the first objective of the research paper.

The findings of hypothesis testing indicate that customers are aware of the use of artificial intelligence in personalized banking services, thereby supporting the second objective of the study. Further, the analysis of customer satisfaction shows that customers are satisfied with AI-based banking services, fulfilling the third objective of the research.

SUGGESTIONS:

Bank staff are an important source of information; regular training programs should be conducted so that employees can confidently explain AI-based services to customers.

Since most respondents hold accounts in nationalized banks, these banks should invest more in advanced AI technologies.

Feedback from customers should be actively collected to upgrade AI services.

Customers may have concerns about data security. Banks should clearly communicate privacy policies and security measures used in AI systems.

CONCLUSION:

Artificial intelligence has emerged as an advanced and updated computer technology that plays a significant role in delivering personalized banking services. The study reveals that a majority of respondents hold accounts in nationalized banks, followed by private and cooperative banks. Various AI-based personalized banking services such as chatbots, personalized offers, fraud detection alerts, voice-based banking, and automated loan approvals are being increasingly used by banks.

Overall, the study concludes that AI-based personalized banking services have positively influenced customer awareness and satisfaction. and plays a crucial role in enhancing personalized banking services in Khed Taluka of Pune District. With continuous improvement, effective communication, and strong data security measures, artificial intelligence can further enhance the quality of banking services and strengthen customer relationships in the Indian banking sector.

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